

## INFORMATION TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT

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### ABSTRACT

Fundamental changes have occurred in today's economy. These changes alter the relationship we have with our customers, our suppliers, our business partners and our colleagues. It shows how IT developments have presented companies with unprecedented opportunities to gain competitive advantage. This paper focuses the role of Information technology (IT) in today's complex supply chain management. Critical IT contributions and drivers are discussed. According to the findings of research conducted in 14 industrial and service companies, the use of IT for SCM purposes can be divided into 1) transaction processing, 2) supply chain planning and collaboration, and 3) order tracking and delivery coordination. Fundamental changes have occurred in today's economy. These changes alter the relationship we have with our customers, our suppliers, our business partners and our colleagues. It also describes how IT developments have presented companies with unprecedented opportunities to gain competitive advantage.

**KEYWORDS:** Supply Chain Management, Information Technology, Inter-Organizational Systems, Supply Chain Collaboration, Information Sharing, Case Study

### INTRODUCTION

In the present circumstances, companies are not considered as independent ones rather they are considered as Multi Company, multi organizational networks such as supply chains, companies deliver goods and services to the customers. Supply chain management (SCM) describes that appropriate control of these multi company needs can give rise to significant benefits.

The use of information technology (IT) is very important for managing multi network Company. The use of information technology is very much important for efficient SCM

Mostly, the research has concentrated on either on improving the benefits of inter-organizational information technologies or on describing the effect of certain technologies on supply chain efficiency.

From this paper we can able to know "How and for what are the important purpose does companies use IT in supply chain management and what are the benefits does the company get for using IT in SCM"? This paper tells about the inter organization systems that takes place in multi network company.

## Definitions

In this paper, SCM refers to process which is important for efficient flow of information between the companies and their respective suppliers and customers

When describing the use of IT in SCM we also describe the use of inter-organizational systems that are much used for information sharing in big companies as well as in organizational boundaries.

## Prior Research

Mostly, this article deals with the use of IT in supply chain management. Many authors have included a number of journal articles in their recent research stressing the importance of Information systems in SCM. In this paper the aim is to discuss the importance of three research approaches namely analytical research, empirical studies and classification frame works.

## Analytical and Modelling Research

This Analytical and modeling research is mainly concern about the measure of information sharing between supply chain partners. This research also concern of small scale supply chains mainly their functions, operations etc. Supply chains may vary depending upon the product. From these research we can tell that sharing of demand information in Supply chain improves the performances of supply chain by the rise of availability and inventory related cost are also reduced.

The importance of information sharing mainly depends of predictability of demand. Information sharing can have more important value when there is a situation with unknown demand.

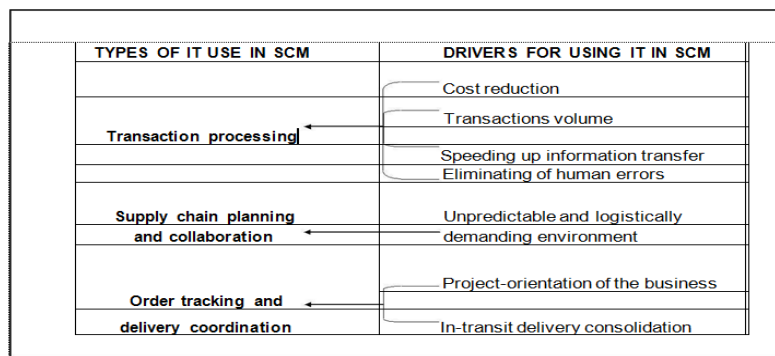
Information Sharing have given less importance in situations where demand can be imagine early, past demand helps to form a accurate demand forecast or accurate demand in the coming future.

## Empirical Studies

From research we can find two types of empirical studies on the use of IT in SCM .The first stream tells about one certain technology in large companies or in general and the second stream tells about the importance of IT in general. From empirical studies we can measure the wide difference between the companies which are using IT and which are not using IT in their respective business environments.

## RESEARCH DESIGN

To know the use of IT in SCM two important constructs were developed.1 The type of IT use in SCM 2. The drivers for using IT in SCM



**Figure 1: The Prior Constructs and their Relationships**

### Types of IT Use in SCM

They are different types of IT use in SCM, the first type mainly tells about how companies sign up IT for the purpose of SCM. With the prior research, they are three different types of IT use in SCM, they are transaction processing, supply chain planning and collaboration and the third type is order tracking and delivery co-ordination. Transaction processing, which is the first type is mainly beneficial for supply chain partners. It is for the utilization of IT for improving the efficiency of repetitive information which is exchange between supply chain partners. In transaction processing, IT use the exchange information for the tasks like billing, verification of delivery..

The Second type of IT use which is Supply chain planning and collaboration which is mainly beneficial for demand information and inventory information in a way like sharing planning related information

The third type of IT use in SCM which is order tracking and delivery co-ordination which is mainly concern of individual orders or individual shipments. Their main aim is to co-ordinate their delivery and to convey the exact timely information of their respective location

### Drivers for IT use in SCM

The second construct which is drivers for IT use in SCM mainly tells the reason why IT is used in SCM in a specific manner. From our research, we can expect drivers play an important role for the use of IT in first type which is transaction processing and which can be found in reduction costs of operational process, by eliminating human errors there is an improvement in information quality. It is also helpful in organizations by speeding up the transfer of information's between organizations. The other specific thing is Supply chain co-ordination information is mostly shared in volatile, unpredictable business and also in logistically demanding business environments. Co-ordination activities and tracking are mostly performed in business which is project oriented.

### Data Analysis

The data was taken in two phases. First phase is about how the case companies uses IT in SCM process and with what kind of partners. With the help of Survey Data we can identify how the companies uses IT in SCM and also the drivers for a particular way of IT use.

With the help of analyzing the cases and by comparing the cases with each other we can identify the potential patterns between the companies using IT in a particular manner

In this Cross Case analysis, comparison of companies using IT in a particular way are compared with the

companies which are not using IT and can measure the potential differences between users and non users in business environments or in large business companies

## RESULTS

From the research, the relationship between the types of IT use in SCM and the drivers for the use of IT in SCM was found. Here the cases were compared with each other, which is done to know the potential patterns between them. In business environment, comparison of companies are made by taking the measure of concentration of supply chain partners and the role of the company in the supply chain in order to differentiate the companies which are using IT in a specific way and the companies which does not use IT in SCM..The companies which are using IT in SCM are more advantageous than the company which are non-user of IT.

### Transaction Processing

Many of the companies use IT for the process of transactions with their suppliers, some of them use IT for the process of transactions with customers and only few of the companies use IT for transaction processing in both up and down stream of supply chain. Some of the solutions like extranet were used for processing of orders in the companies. IT is also used for verification of delivery

Because of use of IT for transaction processing, there is a reduce of manual work and costs,

There is a vast improvement of information quality; information transfer can be speed up easily.

The companies with the help of IT reduce manual work to reduce the costs and information transfer can be speed up between the companies.

The companies which use IT for transaction processing with customers are the ones which are located in the upstream part of supply chain .The companies which are not using IT for transaction processing with customers may have fewer customers in their respective company

Similarly, the difference between the companies which uses IT for transaction processing with suppliers and the companies which do not use IT for transaction processing with suppliers is the companies which use IT for transaction processing have moderate number of suppliers where as the companies which do not use IT for transaction processing have less number of suppliers.

### Supply Chain Planning and Collaboration

The utilization of IT for supply chain planning and collaboration is very less when compared to use of IT for transaction processing. For suppliers, less than half of companies are used IT for supply chain planning and collaboration and very few companies use IT for supply chain planning and collaboration with their customers.

Many of the companies use IT for supply chain planning and collaboration in such a way that they use information shared between IT system for running a specific cross organizational process In some companies demand forecast information was also shared to suppliers as they can verify their capability so that they can able to meet the forecast demand and from this point they can also manage the expected demand and potential supply

### Order Tracking and Delivery Coordination

Five Companies (V, W, X, Y, Z) use IT system in order tracking and delivery co-ordination. In case W, order specific status reports were use to update manually into an extranet page if customers specifically asked for it. In case Y, customers can know the delivery status information from the company.

In case (V, X, Z) delivery status information is collected, circulate and perform. In case X, the company provides delivery status information to customers based on project orders. The tracking information is most used in case V. In business environment, the use of IT for order tracking and delivery co-ordination is very appropriate and useful.

By sample of companies, project orientation of business tells about the use of IT for order tracking and delivery co-ordination.

### CONCLUSIONS

With the advancement of technology, customers' expectations are also increasing and companies are prone to more and more uncertain environment. Companies will find that their conventional supply chain integration will have to be expanded beyond their peripheries. Keeping this in mind, the use of IT for SCM purposes was studied by dividing the use of IT into three categories, 1) transaction processing, 2) supply chain planning and collaboration, and 3) order tracking and delivery coordination. Further, the drivers behind these different IT use types were examined. Based on the empirical data collected for this study, the three IT use categories proposed represent well the roles that IT plays in SCM. In addition to clarifying this widely discussed topic, the categorization provides a basis for further research on the use of IT in SCM.

In our findings, the continuity of the business relationship was found to drive this use of IT. The use of IT in supply chain planning and coordination, in turn, was found to be driven by the implementation of cross-organizational processes, most often the VMI system. Unlike assumed, unpredictable and logistically demanding environment did not stand out as a driver for this use of IT. Finally, project-orientation of business and in-transit consolidation were found to drive the use of IT for order tracking and delivery coordination. Moreover, this use of IT was mostly driven by the need to coordinate other activities or deliveries based on the progress of specific tracked deliveries.

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